

Title (en)
ENHANCED LIGHT EXTRACTION IN LEDS THROUGH THE USE OF INTERNAL AND EXTERNAL OPTICAL ELEMENTS

Title (de)
LICHTEMITTIERENDE DIODEN MIT VERBESSERTER LICHTAUSKOPPELUNG DURCH VERWENDUNG VON INTERNEN UND EXTERNEN OPTISCHEN ELEMENTEN

Title (fr)
EXTRACTION PERFECTIONNEE DE LUMIERE DANS DES DIODES ELECTROLUMINESCENTES AU MOYEN D'ELEMENTS OPTIQUES INTERIEURS ET EXTERIEURS

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Application
EP 00992180 A 20001128

Priority

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Abstract (en)
[origin: WO0141225A2] This invention describes new LEDs having light extraction structures (26) on or within the LED to increase its efficiency. The new light extraction structures (26) provide surfaces for reflecting, refracting or scattering light into directions that are more favorable for the light to escape into the package. The structures can be arrays of light extraction elements (42, 44, 46, 48, 50, 52) or disperser layers (112, 122, 134, 144, 152, 162). The light extraction elements can have many different shapes and are placed in many locations to increase the efficiency of the LED over conventional LEDs. The disperser layers provide scattering centers for light and can be placed in many locations as well. The new LEDs with arrays of light extraction elements are fabricated with standard processing techniques making them highly manufacturable at costs similar to standard LEDs. The new LEDs with disperser layers are manufactured using new methods and are also highly manufacturable.

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